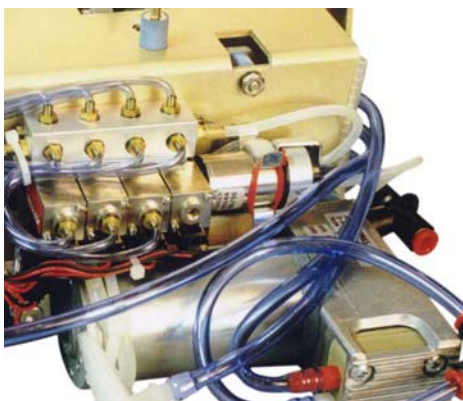


Air Exchange Pump Cleaning Procedure

To clean the air exchange pump, the pneumatics module needs to be removed from the VitMan. To remove the pneumatics module see the Pneumatic Module Removal procedure in the System Assembly/Disassembly Procedures section of the VitMan Maintenance Manual.



After removing the pneumatics module from the VitMan, place it upside-down. The air exchange pump is attached to the pneumatics module, and located next to the pneumatic valve assembly and above the vacuum pump.



Locate and remove the air exchange pump. A wire tie is used to secure the air exchange pump to the pneumatics module bracket. The wire tie will need to be cut to remove the pump. The wire tie is not reusable and will need to be replaced once the cleaning procedure is complete. The wire tie is 3.25" x .1" and has an 18 lb. tensile strength.



Tubing is attached to both ports on the pump head. The blue tubing is attached to the pressure port, marked with a "P" on the pump cylinder, and will need to be removed. Gently pull on the tubing to remove it from the head. If it seems too tight, gently push on the end of the tubing with a small screwdriver. Be careful not to damage the port on the pump head.

Air Exchange Pump Cleaning Procedure

The white tubing is attached to the vacuum port, marked with a "V" on the pump cylinder. For this procedure it is not necessary to remove the white tubing. However, if it becomes necessary to remove the white tubing, a wire tie is used to secure it to the vacuum port. Be careful not to cut the tubing when removing the wire tie. If the tubing is cut, just shorten the tubing, since the length of the white tubing is not critical. The wire tie, if removed, is not reusable and will need to be replaced. The wire tie is 3.25" x .1" and has an 18 lb. tensile strength.

For this procedure it is not necessary to free the wires from the pneumatics module.



Once the pump is free of the pneumatics module, mark the location of the cylinder and clamp on the pump motor. Place a mark on the motor opposite the "V" on the cylinder. Mark both edges on both sides of the clamp to provide proper alignment during re-assembly.



Using a 1.5mm Allen wrench, loosen the set-screw two turns. Do not remove the thread locking compound from the set-screw or the clamp. This will be used to determine how tight to tighten the set-screw during re-assembly.



While holding the pump head onto the cylinder, slide the clamp off the pump motor while pivoting the clamp on the pump head.

Air Exchange Pump Cleaning Procedure



While holding the pump vertical, remove the pump head. Note: The pump contains loose parts and they may fall out if the pump is not held vertical. Be careful to not touch the bottom of the head with your fingers. Please note the orientation of the four vanes (see the next picture). The void on the vane is located on top, and on the side of the slot nearest the pump motor shaft. The pump motor shaft is located in the center of the pump rotor.



Remove the cylinder from the pump motor. Be careful not to touch the internal surface of the cylinder with your fingers. Note the head alignment pin, shown here on the left side of the picture. This pin fits into a hole in the pump head and also indicates the top of the cylinder.



Air Exchange Pump Cleaning Procedure

Carefully place the vanes onto a soft cloth by turning the pump upside-down. The vanes should fall freely (if not, gently tap the pump motor). Make sure all four vanes are removed from the pump rotor. Also, be careful to not touch the vanes or rotor with your fingers. Any oil or moisture will degrade pump performance and may prevent pump operation.



Using a soft cloth or fine brush, clean the pump rotor. Do not touch any of the interior parts of the pump with your fingers.

Using a soft cloth, gently clean the parts of the pump.

- a) Clean the bottom of the pump head. Be careful to not touch the bottom of the head with your fingers. Any oil or moisture will degrade pump performance and may prevent pump operation.
- b) Clean the inside of the cylinder. Be careful to not touch the inside of the cylinder with your fingers.
- c) Clean the vanes individually by rubbing both sides within a soft cloth. Be careful to not touch the vanes with your fingers.

Place the cylinder back on the pump motor. The head alignment pin must be away from the pump motor and align the mark, placed on the motor, with the "V" on the cylinder. Firmly press the cylinder into place.

Carefully place the vanes back into the pump rotor using tweezers. Grasp the vanes only on the broad flat sides, not on the edges. Be careful not to damage the vanes with the tweezers. The vanes should slide freely into the rotor. Do not force the vanes.

Place the pump head on the cylinder. The alignment pin in the cylinder must fit into the alignment hole in the cylinder head.

Place the clamp back on the pump head and pivot into place. Use the marks on the motor to align the clamp.

Tighten the set-screw. Use the thread lock as an indication of how far to tighten the set-screw. Be careful not to over tighten the set-screw. If the set-screw is too tight, the pump head may come in contact with the pump rotor and prevent pump operation. Place a small drop of fingernail polish on the set-screw and clamp.

Attach the tubing to the pump. Press the blue tubing onto the pressure port, and make sure the tubing is firmly attached.

Attach the pump to the pneumatics module using a wire tie. The wire tie is 3.25" x .1" and has an 18 lb. tensile strength.

Air Exchange Pump Cleaning Procedure

Return the pneumatics module to the VitMan using the Pneumatic Module Installation procedure in the System Assembly/Disassembly Procedures section of the VitMan Maintenance Manual.

Air Exchange Pump Parts Identification



Clamp.



Cylinder. Note the pump head alignment pin is shown at the top in the photo.



Pump head.



Pump head, bottom view. Note the pump head alignment hole is shown at the top in the photo.



Vane. The void in the vane (shown at the top in the photo) is placed next to the slot side of the rotor nearest the pump motor shaft and closest to the pump head when properly installed.